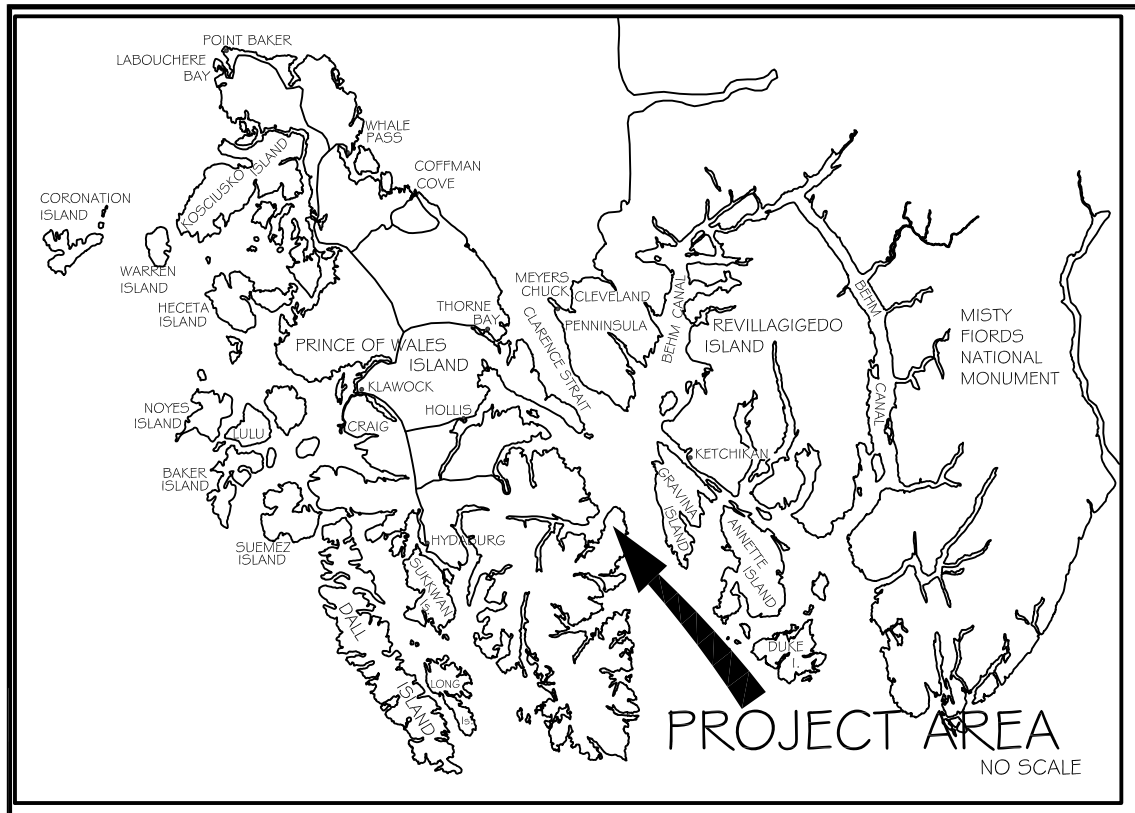


LANCASTER ROADS

PUBLIC WORKS CONTRACT

PLANS FOR PROPOSED FOREST DEVELOPMENT PROJECT

ROAD NO.	STA to STA	MP to MP	LENGTH (MILES)	TYPE	CLOSURE DEVICE
LTF				BASE RECONSTRUCITON	a
2160000	0+00 TO 52+80	10.98 - 11.98	1	OPTION #1 CONSTRUCITON	a
2160000	52+80 TO 105+60	11.98 - 13.98	2	OPTION #2 CONSTRUCITON	a
2160000	105+60 TO 211+20	13.98 - 14.98	1	OPTION #3 CONSTRUCITON	a

INDEX TO SHEETS

CLOSURE DEVICE

a. ROAD TO REMAIN OPEN

b. ROAD TO BE CLOSED BY ORGANIC ENCROACHMENT (ALDER GROWTH). NO WORK REQUIRED BY PURCHASER.

c. ROAD TO BE CLOSED BY SEEDING. ROADWAY TO BE SCARIFIED TO A DEPTH OF 4". SEED ALL EXPOSED AREAS, PLUS THE TRAVELLED WAY, PER ITEM 625(03). COST ALLOWANCE IS CONTAINED IN THE APPRAISAL.

RECOMMENDED

DISTRICT RANGER DATE

APPROVED

FOREST ENGINEER DATE

TONGASS
ENGINEERING & RECREATION

DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:	
DRAWN: BRAY	DATE: 07/29/08	XX/XX/XX	XXXXXXXXX	X. XXXXX	
REVIEWED: L. DUNHAM	DATE: 08/01/08	XX/XX/XX	XXXXXXXXXXX	X.XXXXX	
TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXX	X. XXXXX	

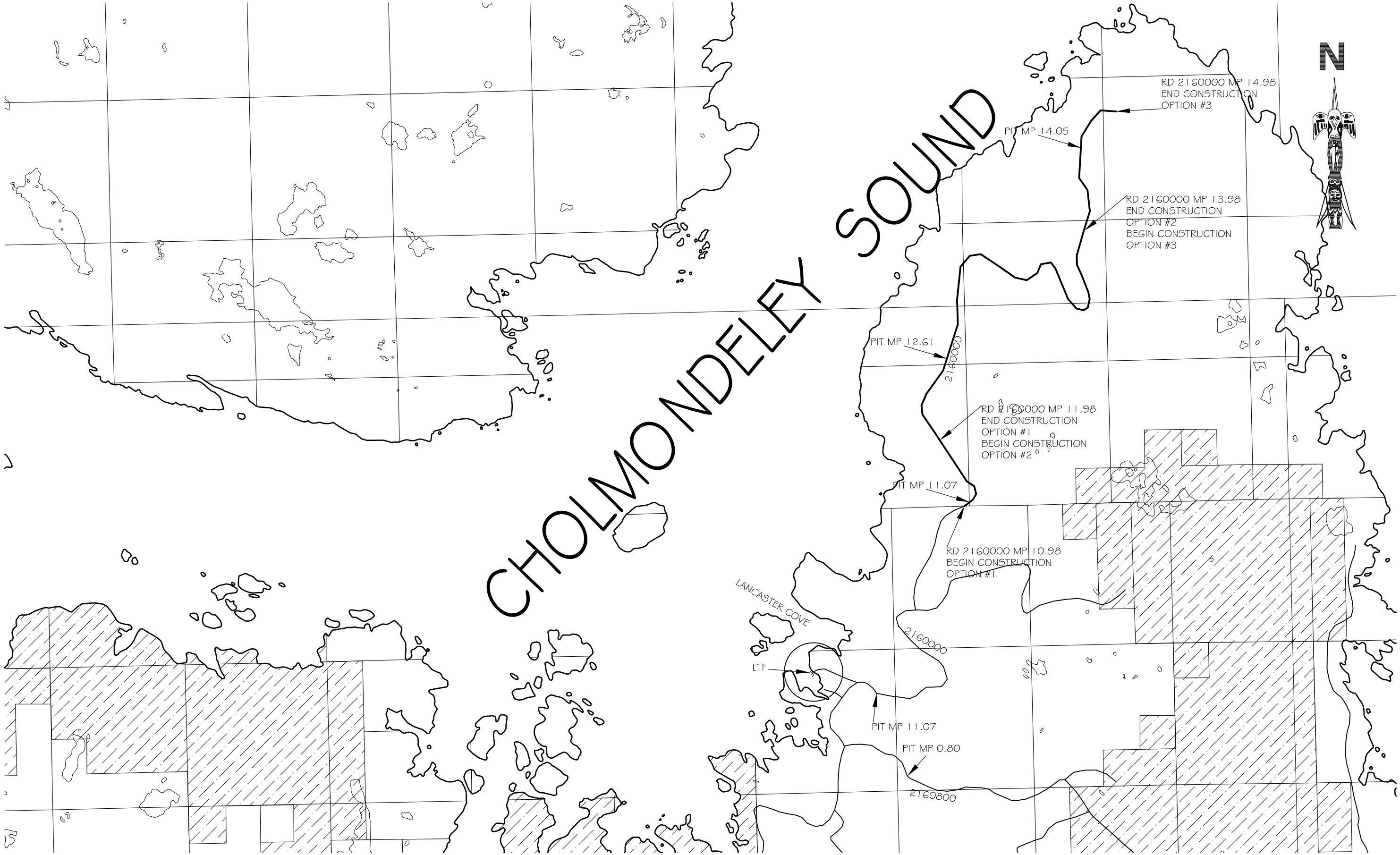
USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG DISTRICT

LANCASTER ROADS

SHEET TITLE

ACAD.DWG
PLOT ON 11"X17" PAPER

SH. 1 of 14



TONGASS ENGINEERING & RECREATION	DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:	LANCASTER ROADS	LOCATION MAP
	DRAWN: BRAY	DATE: 07/29/08	XX/XX/XX	XXXXXXXXXX	X. XXXXXX	USDA FOREST SERVICE - TONGASS NATIONAL FOREST R-10 - CRAIG DISTRICT	ACAD.DWG PLOT ON 11"X17" PAPER
	REVIEWED: L. DUNHAM	DATE: 08/01/08	XX/XX/XX	XXXXXXXXXXXX	X.XXXXXX		SH. 2 of 14
	TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX		

SUMMARY OF ESTIMATED QUANTITIES

ITEM NUMBER	DESCRIPTION	QUANITIES	METHOD OF MEASUREMENT	UNIT	ROAD NUMBER				
					LTF				
15101	MOBILIZATION		LS	LS	1				
20305	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	1	LS	LS	1				
20801	MARINE STRUCTURE EXCAVATION	1200 CY	CQ	CY	1200				
25101	PLACED RIPRAP, CLASS 6, METHOD A	1100 CY	CQ	CY	1100				

TONGASS
ENGINEERING & RECREATION

DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:
DRAWN: BRAY	DATE: 07/29/08	XX/XX/XX	XXXXXXXXXX	X. XXXXXX
REVIEWED: L. DUNHAM	DATE: 08/01/08	XX/XX/XX	XXXXXXXXXXXX	X.XXXXXX
TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX

LANCASTER ROADS

USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG DISTRICT

SUMMARY OF ESTIMATED QUANTITIES

ACAD.DWG
PLOT ON 11"X17" PAPER

SUMMARY OF ESTIMATED QUANTITIES

ITEM NUMBER	DESCRIPTION	METHOD OF MEASUREMENT	UNIT	ROAD # 2160000					
				OPTION #1	OPTION #2	OPTION #3			
21201	LINEAR GRADING	AQ	MILE	1	2	1			
57102	GOVERNMENT FURNISHED BRIDGE, TRANSPORT AND INSTALL	LS	EACH	0	0	1			
6020118	18" CORRUGATED METAL PIPE 0.064" THICKNESS FOR STEEL OR 0.060" THICKNESS FOR ALUMINUM, METHOD (C), 2 2/3 X 1/2" CORRUGATIONS	AQ	FOOT	376	835	570			
6020124	24" CORRUGATED METAL PIPE 0.064" THICKNESS FOR STEEL OR 0.060" THICKNESS FOR ALUMINUM, METHOD (C), 2 2/3 X 1/2" CORRUGATIONS	AQ	FOOT	205	282	0			
6020136	36" CORRUGATED METAL PIPE 0.064" THICKNESS FOR STEEL OR 0.060" THICKNESS FOR ALUMINUM, METHOD (C), 2 2/3 X 1/2" CORRUGATIONS	AQ	FOOT	0	139	0			
6020148	48" CORRUGATED METAL PIPE 0.079" THICKNESS FOR STEEL OR 0.075" THICKNESS FOR ALUMINUM, METHOD (C), 2 2/3 X 1/2" CORRUGATIONS	AQ	FOOT	30	0	40			
6020184	84" CORRUGATED METAL PIPE 0.109" THICKNESS FOR STEEL OR 0.105" THICKNESS FOR ALUMINUM, METHOD (C), 3 X 1" CORRUGATIONS	AQ	FOOT	50	43	0			

TONGASS
ENGINEERING & RECREATION

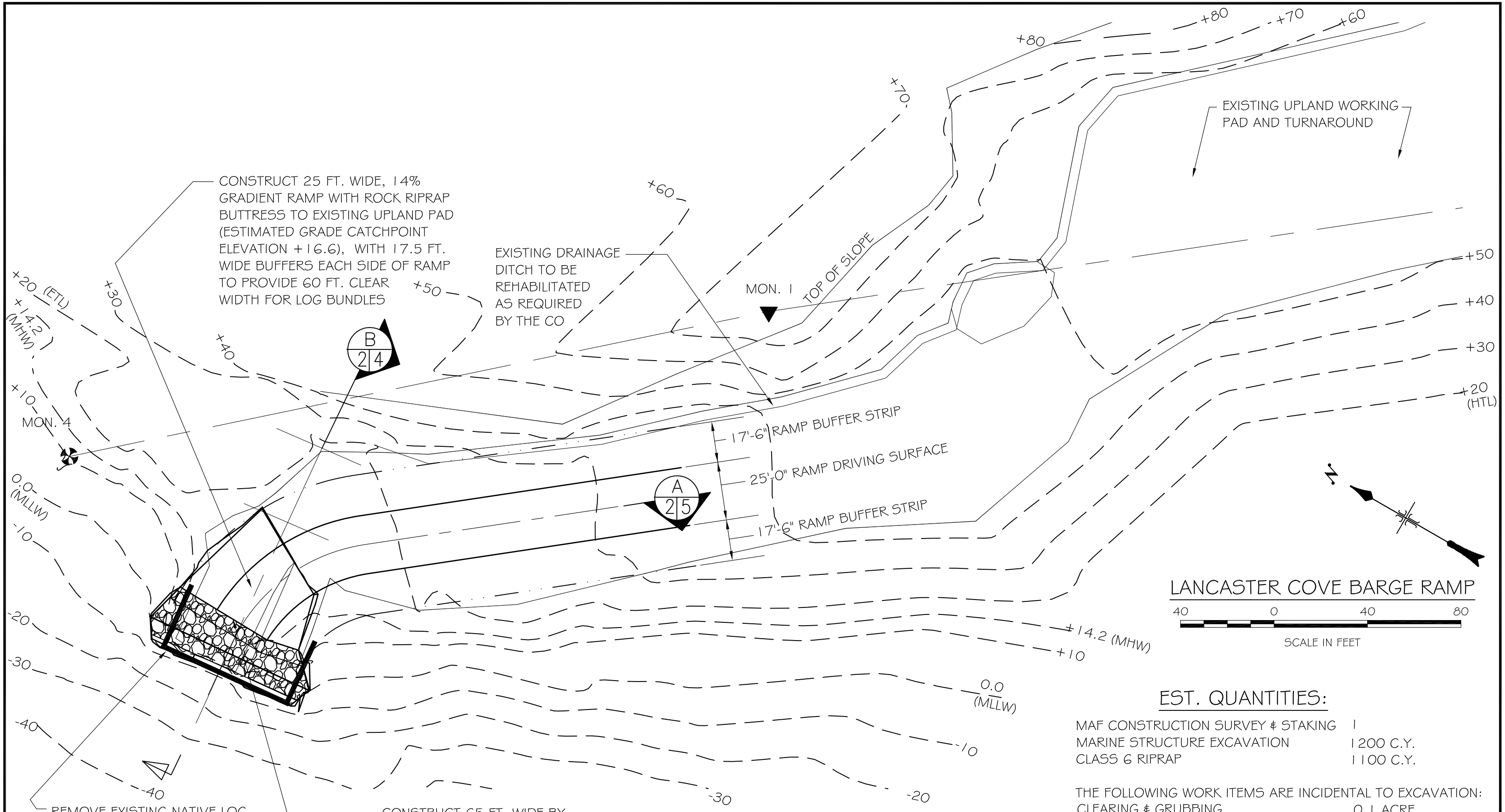
DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:	
DRAWN: BRAY	DATE: 07/29/08	XX/XX/XX	XXXXXXXXXX	X. XXXXXX	
REVIEWED: L. DUNHAM	DATE: 08/01/08	XX/XX/XX	XXXXXXXXXXXX	X.XXXXXX	
TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX	

LANCASTER ROADS

USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG DISTRICT

SUMMARY OF ESTIMATED QUANTITIES

ACAD.DWG
PLOT ON 11"X17" PAPER



NOTE: SOLID BEDROCK REQUIRING BLASTING MAY BE ENCOUNTERED DURING EXCAVATION FOR THE 14% RAMP

LANCASTER COVE BARGE RAMP

40 0 40 80

SCALE IN FEET

EST. QUANTITIES:

MAF CONSTRUCTION SURVEY & STAKING	1
MARINE STRUCTURE EXCAVATION	1200 C.Y.
CLASS 6 RIPRAP	1100 C.Y.

THE FOLLOWING WORK ITEMS ARE INCIDENTAL TO EXCAVATION:

CLEARING & GRUBBING	0.1 ACRE
SILT FENCE	150 L.F.
STRAW BALES	6
SEDIMENT TRAP	1

TONGASS
ENGINEERING & RECREATION

DESIGNED: K. ELMORE	DATE: 09/05/06	DATE:	REVISION:	BY:
DRAWN: K. ELMORE	DATE: 09/28/06			
REVIEWED: E. OMAN	DATE: 12/07/06			
TNFTYP:09/04				

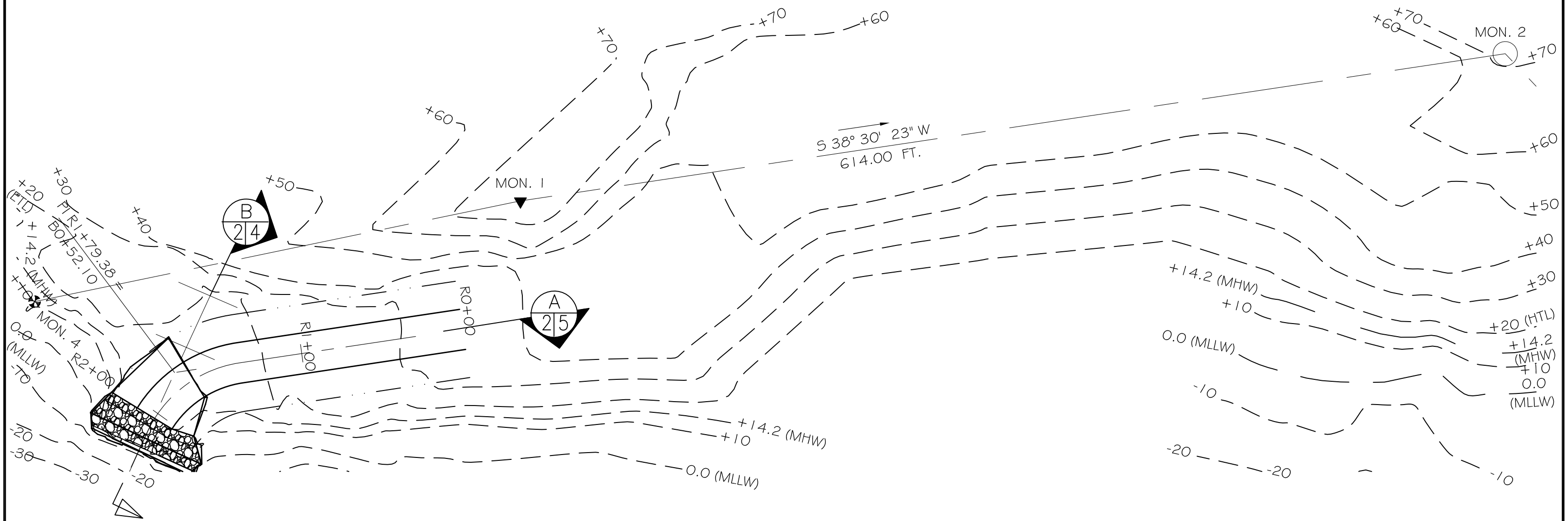
LANCASTER COVE MAF BARGERAMP RETROFIT

USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG RANGER DISTRICT

BARGE RAMP SITE PLAN

lancastercove_maf_2006_bulkhead_replace.DWG
PLOT ON 11"X17" PAPER

SH. 5 of 14



LANCASTER COVE SURVEY CONTROL

1. ELEVATION DATUM MEAN LOWER LOW WATER LEVEL.
2. MEAN TIDE LEVELS BASED ON U.S.C.& G.S. VERTICAL CONTROL STATION "LANCASTER COVE" IN CHOLMONDELEY SOUND

	LANCASTER COVE
MLLW	0.0
MHW	14.2
HIGHEST OBSERVED	20.0

MONUMENT #	NORTHING	EASTING	ELEVATION
1	10153.51'	9910.12'	79.08'
2	9673.03'	10292.40'	75.80'
4	10381.13'	9707.15'	10.27'

Monument 2

4469

2

2000

Monument 4

MC4

ATS 1549
RLS 9118
1998

TYPICAL MONUMENT MARKERS

MONUMENT DESCRIPTIONS

Monument 1: Set 5/8" rebar 0.5' above ground at the highest point of a clearing in green & white rock, 30' east of and 5' to 10' higher than the top of a vertical rock face, 30' west of the edge of disturbed ground, 20' south of the edge of Cedar & Hemlock trees, S60°E 260' from the bulkhead and ramp, on top of the blasted area.

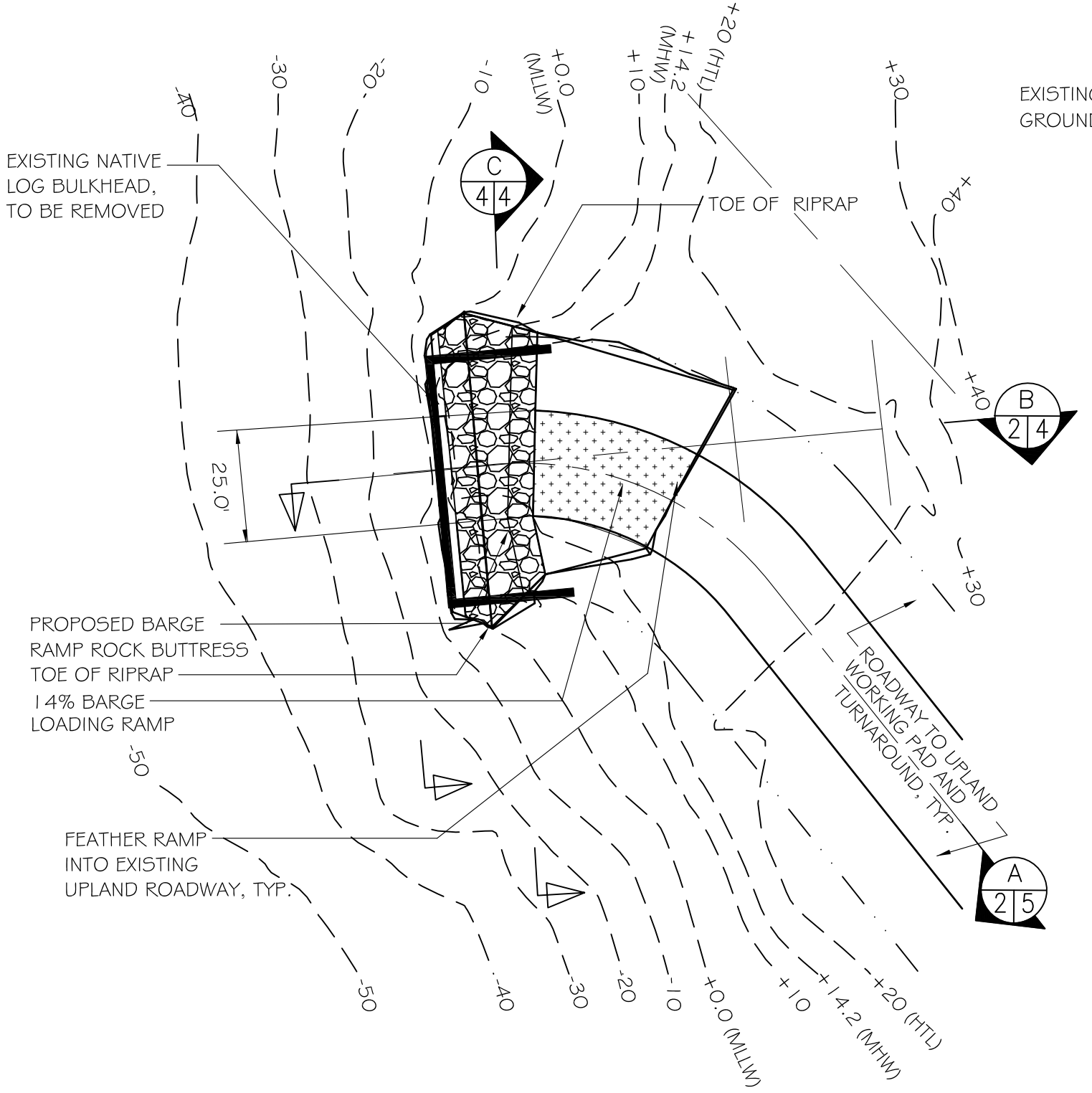
From which a 12" dbh cedar with a fresh blaze 4' above ground and older blazes lower, with an 8d finish nail 4' above ground in the east side bears N80°E approximate bearing, 21.55'.

Monument 2: Set 5/8" rebar with 2" aluminum cap cemented into a drill hole in bedrock, 20' above a gravel pad, 150' north of the southeast corner of a gravel pad, 30' north and 10' higher than a 6" stripe of white quartz in dark bedrock, 2' from the edge of a vertical rock face,

From which an 8" dbh Cedar, blazed 4' above ground with an 8d nail 4' above ground in the east side bears approximately N60°E, 9.06'.

Monument 4: Found a brass cap, Dept. of Agriculture, USFS. Note that the cap marking would normally be stamped "WC" when an arrow is present.

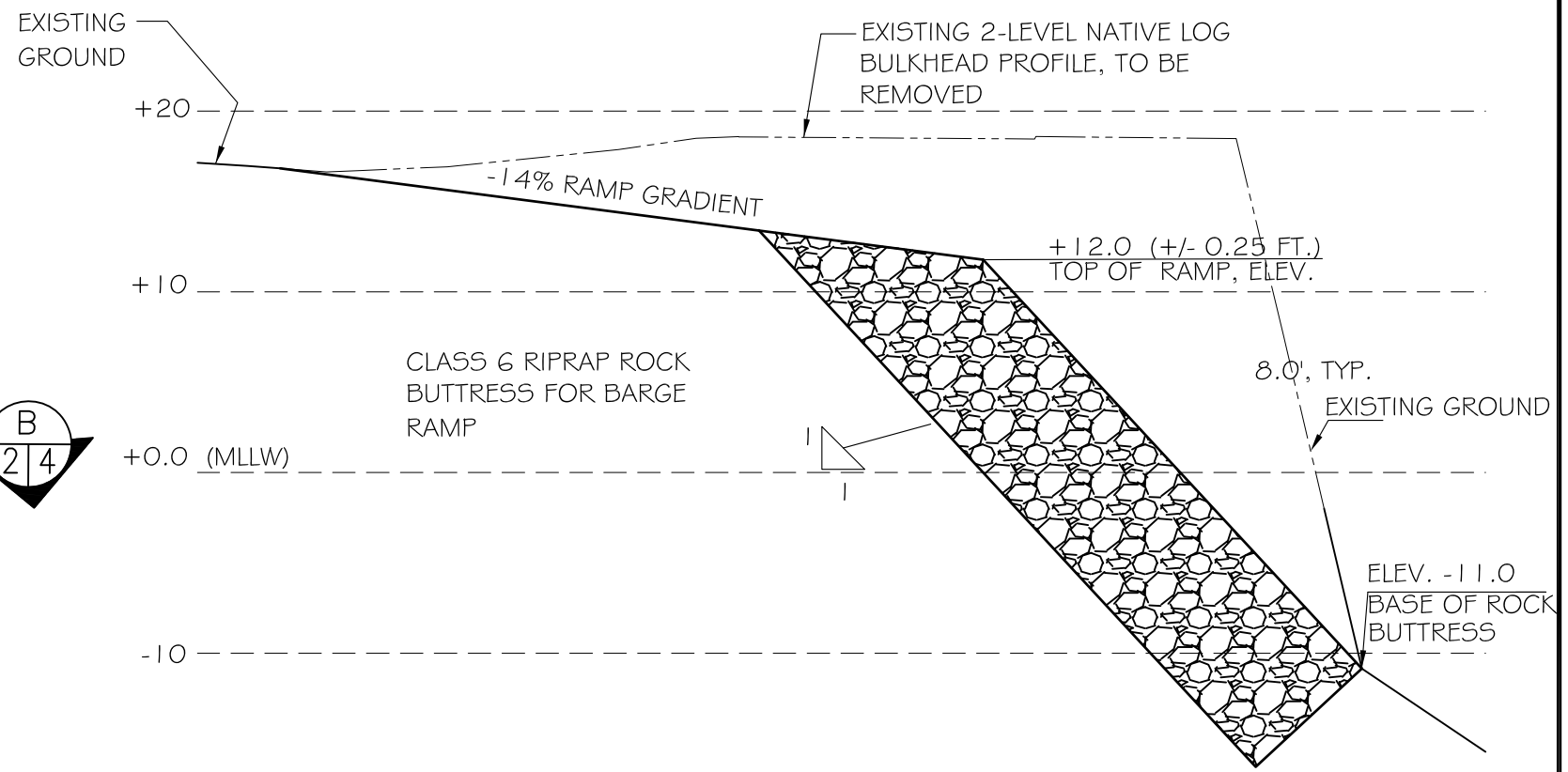
TONGASS ENGINEERING & RECREATION	DESIGNED: K. ELMORE	DATE: 11/01/06	DATE:	REVISION:	BY:	LANCASTER COVE MAF BARGERAMP RETROFIT	RAMP CONTROL & SURVEY DATA
	DRAWN: K. ELMORE	DATE: 11/07/06				USDA FOREST SERVICE - TONGASS NATIONAL FOREST	lancastercove_maf_bargeramp.DWG
	REVIEWED: E. OMAN	DATE: 12/07/06				R-10 - CRAIG RANGER DISTRICT	PLOT ON 11"X17" PAPER
	TNFTYP:09/04						SH. 6 of 14



ROCK BUTTRESS RAMP PLAN VIEW

SCALE, IN FEET

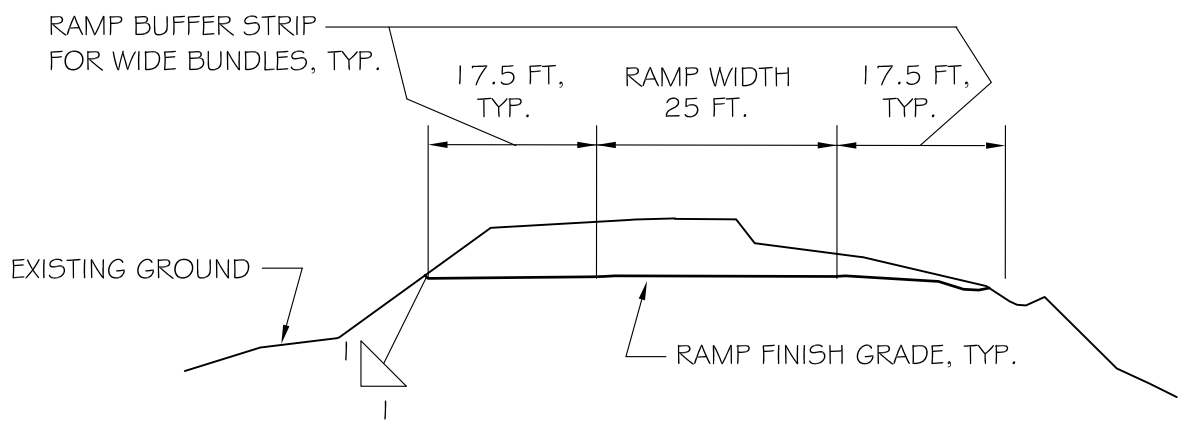
0 20 40 80



B 2|4 LANCASTER COVE RAMP & BULKHEAD FACE ELEVATION

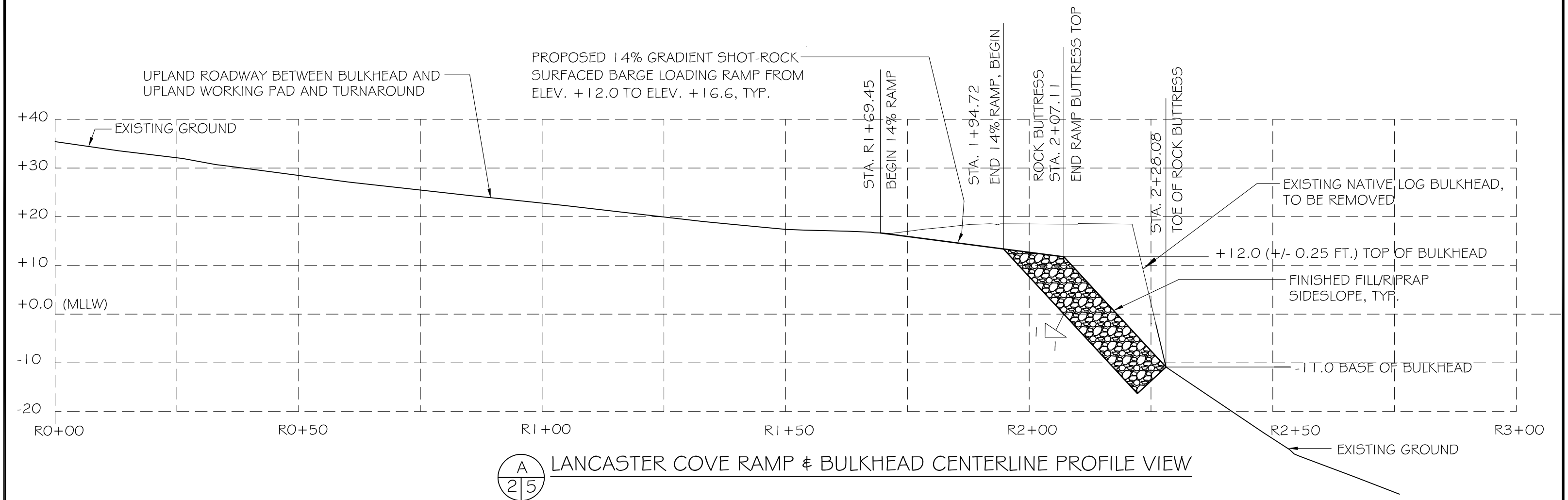
12.5 0 12.5 25

SCALE IN FEET



C 4|4 LANCASTER COVE RAMP TYPICAL SECTION

TONGASS ENGINEERING & RECREATION	DESIGNED: K. ELMORE	DATE: 11/01/06	DATE:	REVISION:	BY:	LANCASTER COVE MAF BARGERAMP RETROFIT	RAMP PLAN & DETAILS
	DRAWN: K. ELMORE	DATE: 11/07/06				USDA FOREST SERVICE - TONGASS NATIONAL FOREST R-10 - CRAIG RANGER DISTRICT	lancastercove_maf_2006_bargeramp.DWG PLOT ON 11"X17" PAPER
	REVIEWED: E. OMAN	DATE: 12/07/06					SH. 7 of 14
	TNFTYP:09/04						

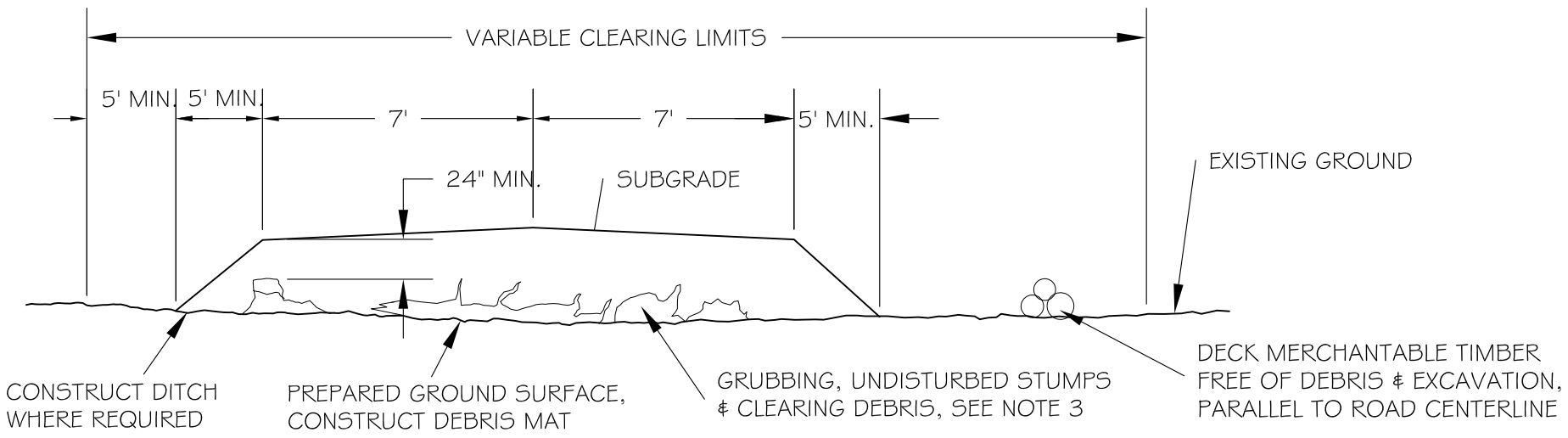


A / 25 LANCASTER COVE RAMP & BULKHEAD CENTERLINE PROFILE VIEW

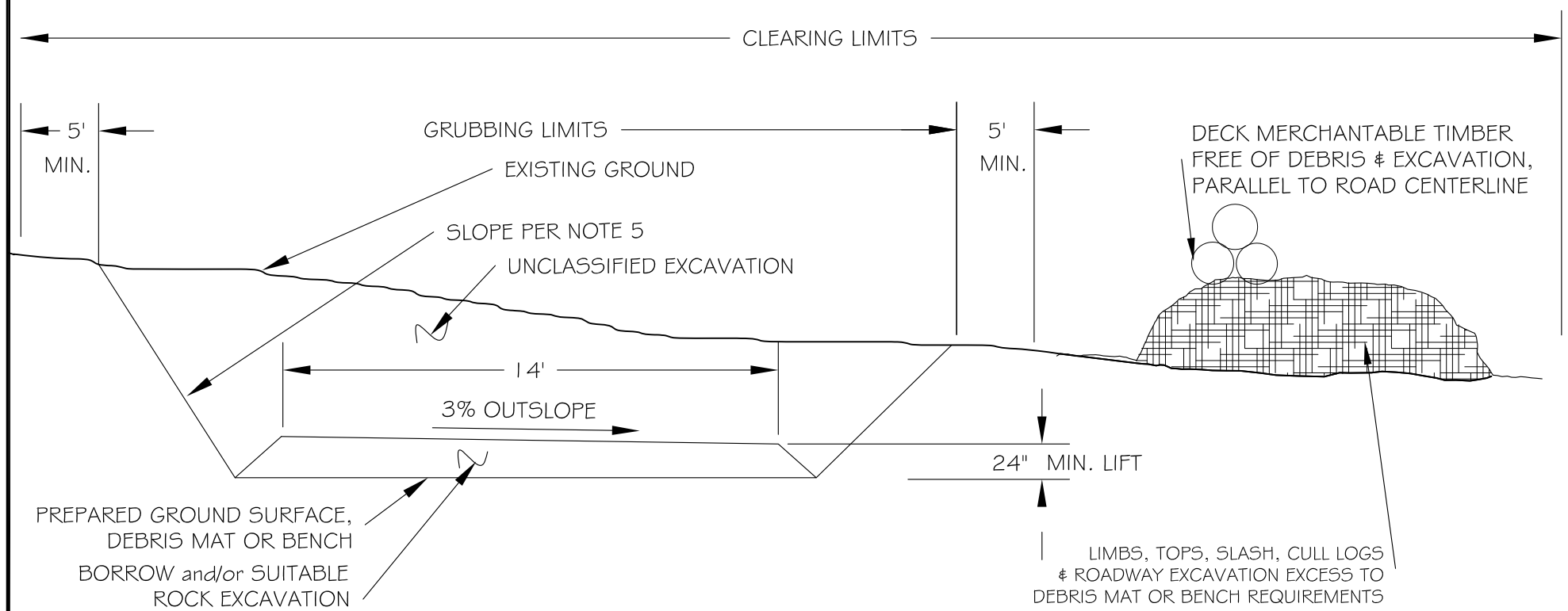
25 0 25 50

SCALE IN FEET

TONGASS ENGINEERING & RECREATION	DESIGNED: K. ELMORE	DATE: 11/01/06	DATE:	REVISION:	BY:	LANCASTER COVE MAF BARGERAMP RETROFIT	BARGE RAMP PROFILE
	DRAWN: K. ELMORE	DATE: 11/06/06				USDA FOREST SERVICE - TONGASS NATIONAL FOREST R-10 - CRAIG RANGER DISTRICT	lancastercove_maf_2006_bargeramp.DWG PLOT ON 11"X17" PAPER
	REVIEWED: E. OMAN	DATE: 12/07/06					SH. 8 of 14
	TNFTYP:09/04						



TYPICAL OVERLAY SECTION



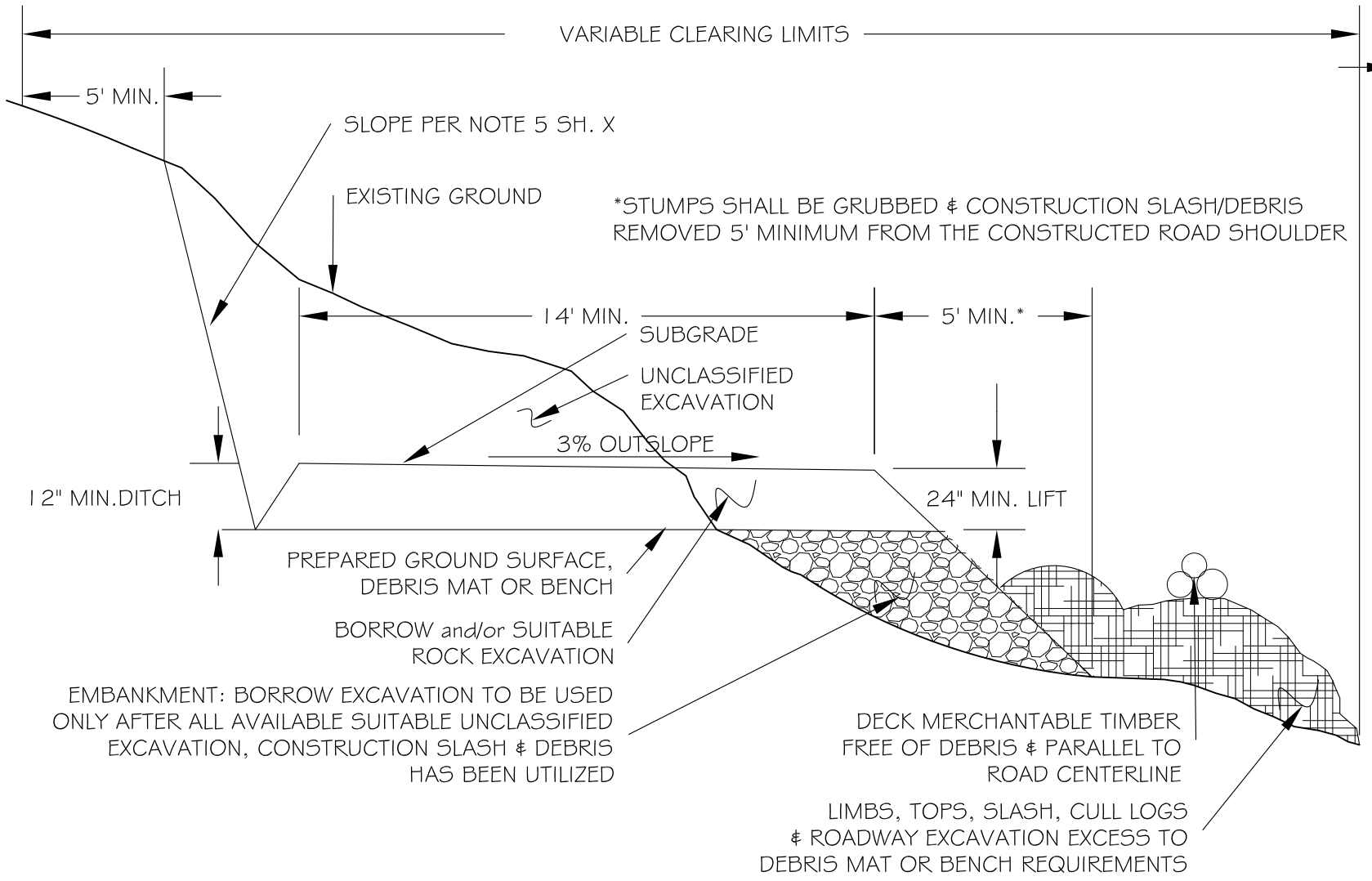
TYPICAL THROUGH CUT SECTION

NOTES

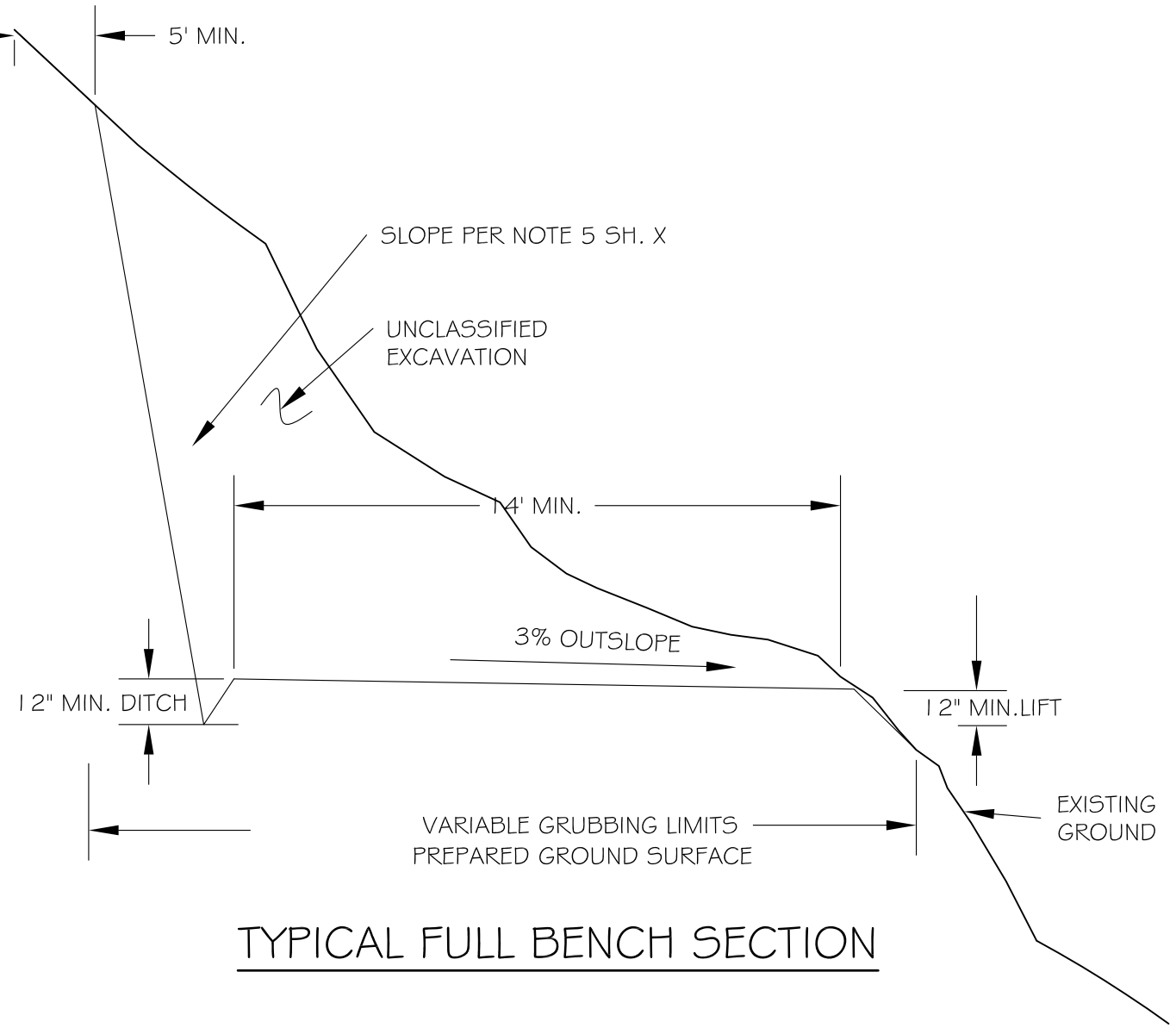
1. ROADWAY CONSTRUCTION: UNLESS OTHERWISE SHOWN THE CENTERLINE ALIGNMENT AND SUBGRADE ELEVATION, AS BUILT, SHALL HAVE NO HORIZONTAL CURVES WITH A RADIUS OF LESS THAN 80 FEET, AND NO VERTICAL CURVES WITH A CURVE LENGTH OF LESS THAN 80 FEET WHEN THE ALGEBRAIC DIFFERENCE IN THE GRADE IS LESS THAN 10 PERCENT, OR A CURVE LENGTH OF LESS THAN 100 FEET WHEN THE ALGEBRAIC DIFFERENCE OF THE GRADE CHANGE IS GREATER THAN OR EQUAL TO 10 PERCENT. THE CENTERLINE GRADE IS NOT TO EXCEED 20 PERCENT IN 100 FEET OF LENGTH. TRAVEL WAY WIDTH SHALL BE AT LEAST 14 FEET BUT NOT GREATER THAN 16 FEET. CONSTRUCTED CENTERLINE ALIGNMENT SHALL NOT DEVIATE FROM THE LOCATED CENTERLINE BY MORE THAN 20 FEET. DEVIATIONS TO ANY OF THE ABOVE SHALL BE AGREED TO IN WRITING PRIOR TO CONSTRUCTION.
2. CLEARING LIMITS: NOMINAL CLEARING LIMITS SHALL BE 46 FEET. CLEARING LIMIT MARKINGS MUST BE APPROVED IN WRITING PRIOR TO CONSTRUCTION. CLEARING LIMITS OF LESS THAN 46 FEET ARE ACCEPTABLE PROVIDING NO DEBRIS OR EXCAVATION IS PLACED AGAINST STANDING TREES AND IS APPROVED BY THE CO.
3. UNDISTURBED STUMPS AND OTHER CLEARING DEBRIS IN EMBANKMENT AREAS MAY BE LEFT IN PLACE IF THEY DO NOT EXTEND CLOSER THAN 24 INCHES TO ANY SUBGRADE (R10 FSS 201.05b)
4. UNMERCHANTABLE TIMBER AND LARGE SLASH TREATMENT FP-03-SECTION FSS 203.05(h)
5. CUT SLOPES FOR (ROCK) SHALL BE 2V:1H OR STEEPER AND 1V:1H(COMMON). FILL SLOPE SHALL BE 1V:1 $\frac{1}{4}$H.
6. OUTSLOPE TRAVELED WAY 3% IN FULL BENCH AND SIDEHILL SECTIONS, SLOPE TO DITCH IN THRU CUTS AND CROWN ROAD AWAY FROM CENTERLINE IN ALL OTHER SECTIONS.
7. SEED AND FERTILIZE ALL DISTURBED AREAS AS SPECIFIED IN FP-03-SECTION FSS 625.
8. SPACING BETWEEN WATERBARS IS VARIABLE. DISTANCES BETWEEN WATERBARS SHALL BE DETERMINED IN THE FIELD BY THE ER/COR.
9. SUBGRADE IS TO HAVE 12" MINIMUM COVERAGE IN ROCK SECTIONS AND 24" MINIMUM COVERAGE IN ALL OTHER SECTIONS.
10. INTERVISIBLE TURNOUTS/PULLOUTS ARE TO BE CONSTRUCTED AT INTERVALS NOT TO EXCEED 500 FEET OR AS DIRECTED BY THE ENGINEER.
11. AVERAGE CLEARING LIMITS BY SIDESLOPE:

0% - 20% = 46 FT
20% - 40% = 50 FT
40% - 55% = 59 FT
60% - 80% = 67 FT

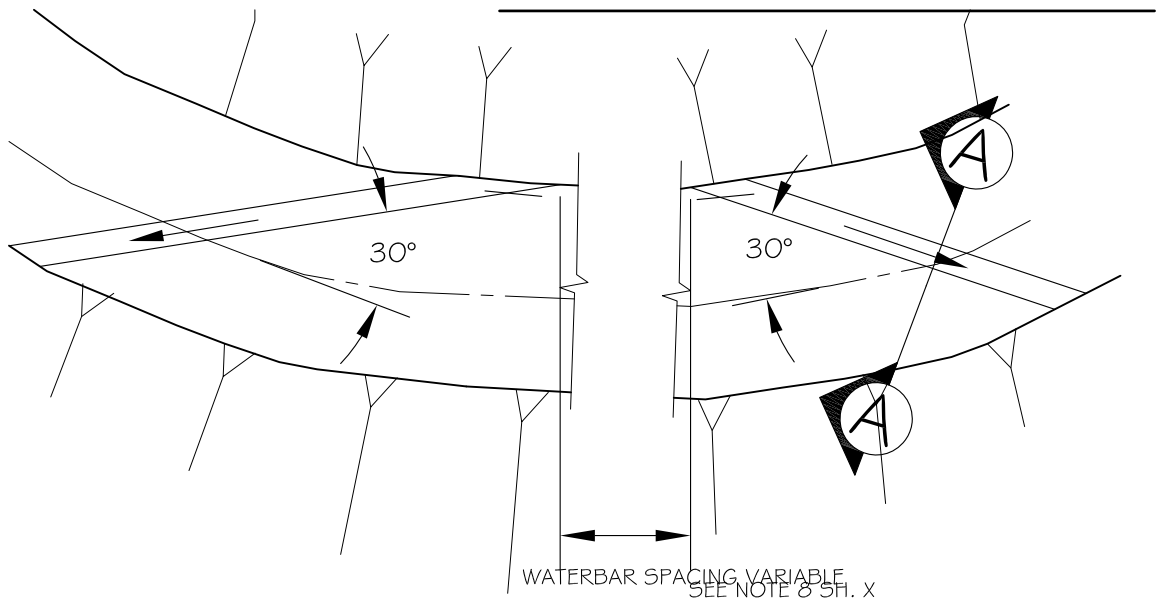
TONGASS ENGINEERING & RECREATION	DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:	LANCASTER ROADS	LINEAR GRADING TYPICAL SECTIONS - 1
	DRAWN: BRAY	DATE: 07/29/08	07/25/05	NOTE 10 ADDED	KB/VH	USDA FOREST SERVICE - TONGASS NATIONAL FOREST R-10 - CRAIG DISTRICT	ACAD.DWG PLOT ON 11"X17" PAPER
	REVIEWED: L. DUNHAM	DATE: 08/01/08	01/06	NOTE 11 ADDED	GWB		SH. 9 of 14
	TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX		



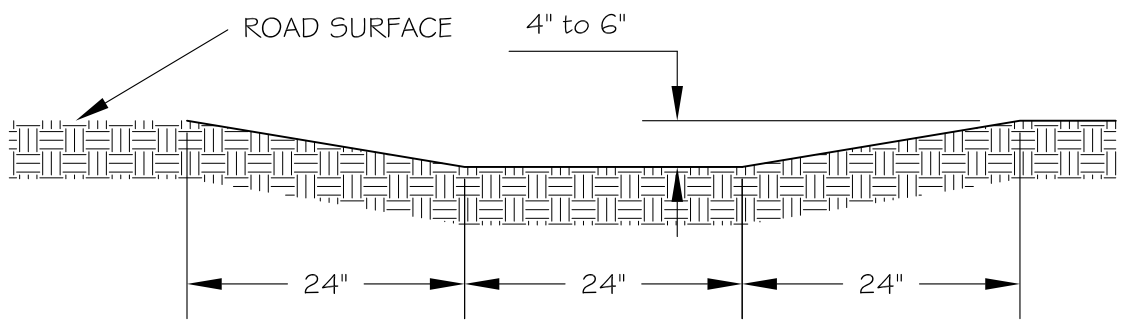
TYPICAL SIDEHILL SECTION



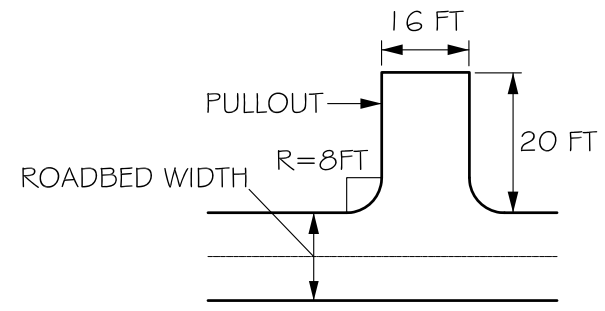
TYPICAL FULL BENCH SECTION



TYPICAL WATERBARS - PLAN VIEW



(A) TYPICAL WATERBAR - SECTION



PULLOUT DETAIL

EACH ROAD WILL HAVE A PULLOUT OR TURNAROUND CONSTRUCTED AT ITS TERMINUS.

TONGASS
ENGINEERING & RECREATION

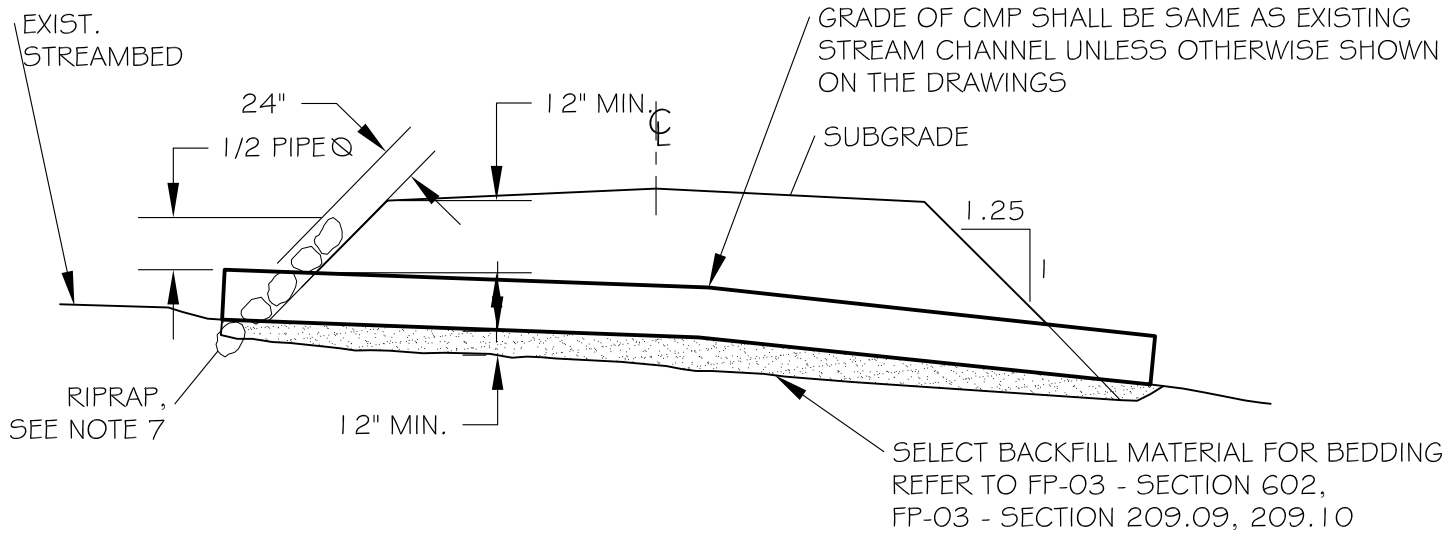
DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:
DRAWN: BRAY	DATE: 07/29/08	01-05	WATERBARS	SJC
REVIEWED: L. DUNHAM	DATE: 08/01/08	01-06	PULL-OUT DETAIL	GWB
TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX

LANCASTER ROADS

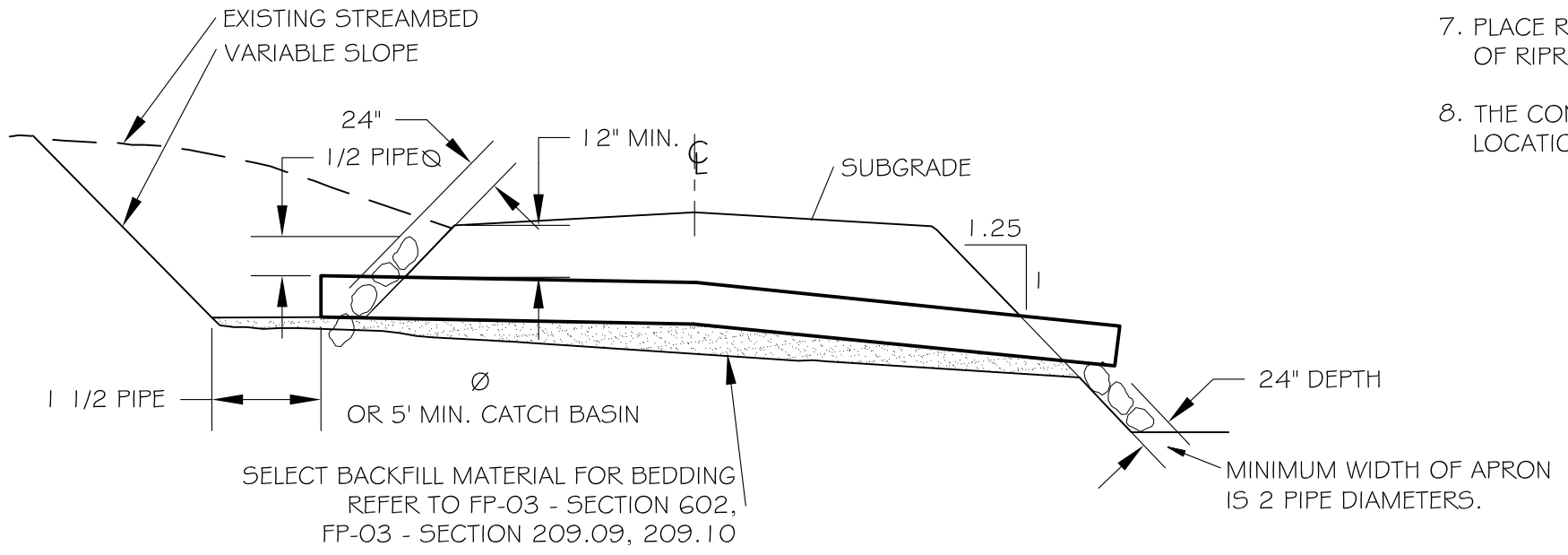
USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG DISTRICT

LINEAR GRADING TYPICAL SECTIONS - 2

ACAD.DWG
PLOT ON 11"X17" PAPER



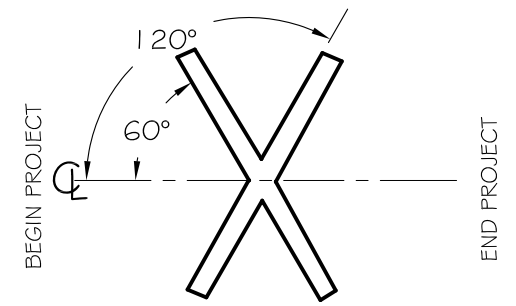
TYPICAL CULVERT INSTALLATION AT LIVE STREAMS



TYPICAL CULVERT INSTALLATION FOR DITCH RELIEF

NOTES

1. PLACE CULVERT IN ALIGNMENT WITH THE NATURAL STREAM CHANNEL. WHERE NO CHANNEL IS APPARENT INSTALL CULVERTS AT SKEWS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE C.O.
2. MINIMUM CULVERT GRADES SHALL BE 5% OR 1/2 OF THE TRIBUTARY DITCH GRADE.
3. CAMBER WILL DEPEND ON SITE CONDITIONS. MAXIMUM CAMBER IS 2% (STEEL OR ALUMINUM CULVERTS) OR 1% (POLYETHYLENE CULVERTS) OF CULVERT LENGTH BY NO MORE THAN 2.5-IN AT CENTER.
4. CATCH BASIN CONSTRUCTION IS REQUIRED WHEN SHOWN ON THE DRAWINGS AND AT ALL INSTALLATIONS WHERE THE INLET IS LOWER THAN NATURAL GROUND.
5. CULVERT INLETS AND OUTLETS SHALL EXTEND 24-IN BEYOND THE TOE OF THE FILL UNLESS AGREED TO BY THE C.O.
6. MINIMUM COVER OVER CULVERTS UNLESS OTHERWISE SHOWN ON THE DRAWINGS IS 12-IN.
7. PLACE RIPRAP AT SITES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE C.O. MINIMUM WIDTH OF RIPRAP IS 1.5 PIPE DIAMETERS. CLASS 4 (MIN) SIZE.
8. THE CONTRACTOR SHALL PROVIDE THE C.O. A LIST OF AS- SLOPE STAKED CULVERT LENGTHS AND LOCATIONS.

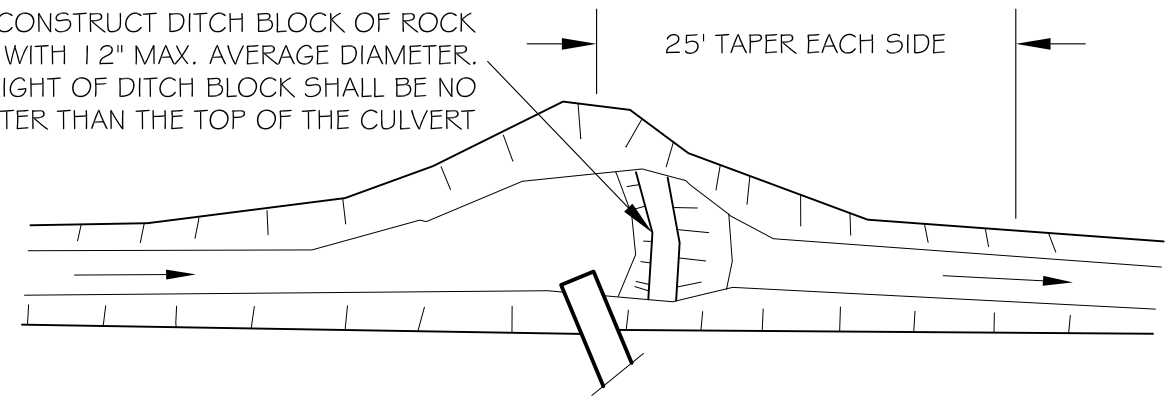


CULVERT SKEW DIAGRAM

ALUMINUM & STEEL CULVERT CORRUGATIONS SHALL CONFORM TO THE FOLLOWING:			
PIPE SIZE INCHES	MIN. INCH / GAGE STEEL	MIN. INCH / GAGE ALUMINUM	CORRUGATIONS
18 TO 36	0.064" / 16	0.060" / 16	2 2/3" X 0.5"
48	0.079" / 14	0.075" / 14	2 2/3" X 0.5"
60	0.079" / 14	0.075" / 14	3" x 1"
72	0.109" / 12	0.105" / 12	3" x 1"

POLYETHYLENE (PE) CULVERT PER ASTM D 3350 CORRUGATED			
PIPE SIZE Ø	MIN. COVER	CELL CLASS. NO. 315412C MAXIMUM FILL HEIGHT IN FEET	CELL CLASS. NO. 324420C MAXIMUM FILL HEIGHT IN FEET
18"	12"	12'	10'
24"	12"	12'	10'
30"	12"	12'	10'
36"	12"	11'	10'

POLYETHYLENE (PE) CULVERT RIBBED			
PIPE SIZE Ø	MIN. COVER	CELL CLASS. NO. 334433C MAXIMUM FILL HEIGHT IN FEET	CELL CLASS. NO. 335434C MAXIMUM FILL HEIGHT IN FEET
18"	12"	18'	24'
24"	12"	22'	28'
30"	12"	22'	28'
36"	12"	25'	31'
40"	12"	21'	27'
48"	12"	21'	26'



TYPICAL CATCH BASIN WITH DITCH BLOCK

TONGASS
ENGINEERING & RECREATION

DESIGNED: BRAY	DATE: 07/29/08
DRAWN: BRAY	DATE: 07/29/08
REVIEWED: L. DUNHAM	DATE: 08/01/08
TNFTYP:08/2004	

DATE:	REVISION:	BY:
1/19/05	CORRECTED DWG	SJC / KWB
2/23/07	UPDATED SPECS	G.BITTORF
XX/XX/XX	XXXXXXXXXXXX	X. XXXXX

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

LANCASTER ROADS

USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG DISTRICT

TYPICAL CULVERT DETAILS

ACAD.DWG
PLOT ON 11"X17" PAPER

SH. 11 of 14

GENERAL NOTES:

TREES TO BE CUT FOR SILL AND BACKWALL LOGS WILL BE DESIGNATED IN THE FIELD BY THE C.O. ATTACH BRIDGE TO SILL AS RECOMMENDED BY THE MANUFACTURER.

ABUTMENT LOCATION AND ELEVATIONS WILL BE STAKED IN THE FIELD BY THE C.O.

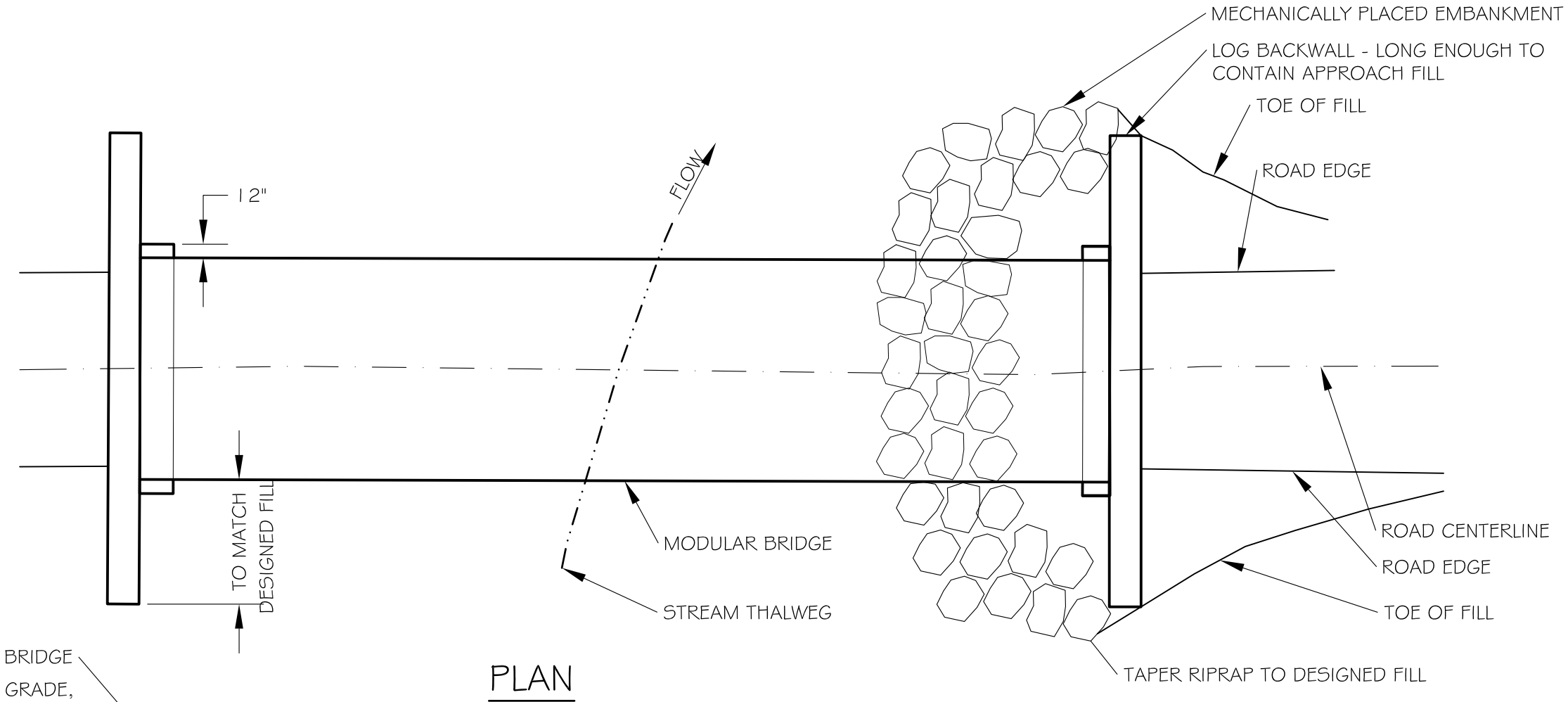
MECHANICALLY PLACED EMBANKMENT, WHEN REQUIRED, IS CONSIDERED INCIDENTAL TO BRIDGE INSTALLATION. PLACE IN ACCORDANCE w/ SPECIAL ROCK EMBANKMENT & ROCK BUTTRESS (FP-03 SECTION-252).

PROVIDE CONNECTION BETWEEN BRIDGE HALVES IN ACCORDANCE WITH MANUFACTURER'S DESIGN, INCLUDING DIAPHRAGMS AND ANGLE BRACES BETWEEN GIRDERS AND RUNNING PLANKS ALONG CENTER OF DECK.

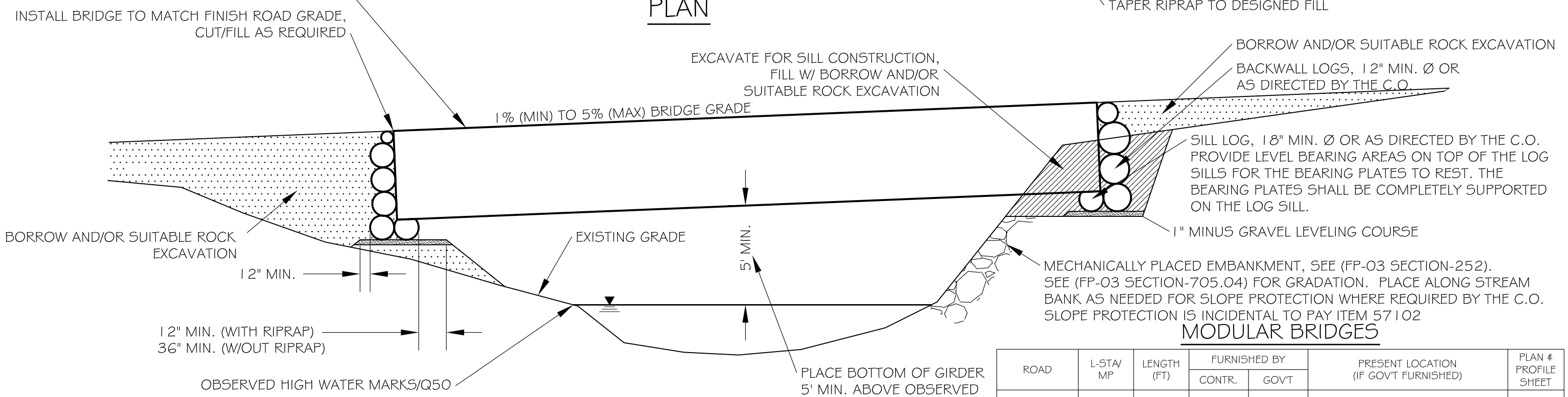
FOR BRIDGE FURNISHED BY THE GOVERNMENT, THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND TRANSPORTATION OF THE BRIDGE FROM ITS PRESENT LOCATION.

SEE PLAN & PROFILE SHEETS FOR FISH TIMING REQUIREMENTS.

EROSION CONTROL PLAN IS REQUIRED IF DIRECTED BY THE C.O. (FP-03 SECTION-157).



PLAN



PROFILE

MODULAR BRIDGES

ROAD	L-STA/ MP	LENGTH (FT)	FURNISHED BY		PRESENT LOCATION (IF GOVT FURNISHED)	PLAN & PROFILE SHEET
			CONTR.	GOVT		
2160000	158+07 MP 13.97	50.0		X	THORNE BAY, AK	NA

TONGASS
ENGINEERING & RECREATION

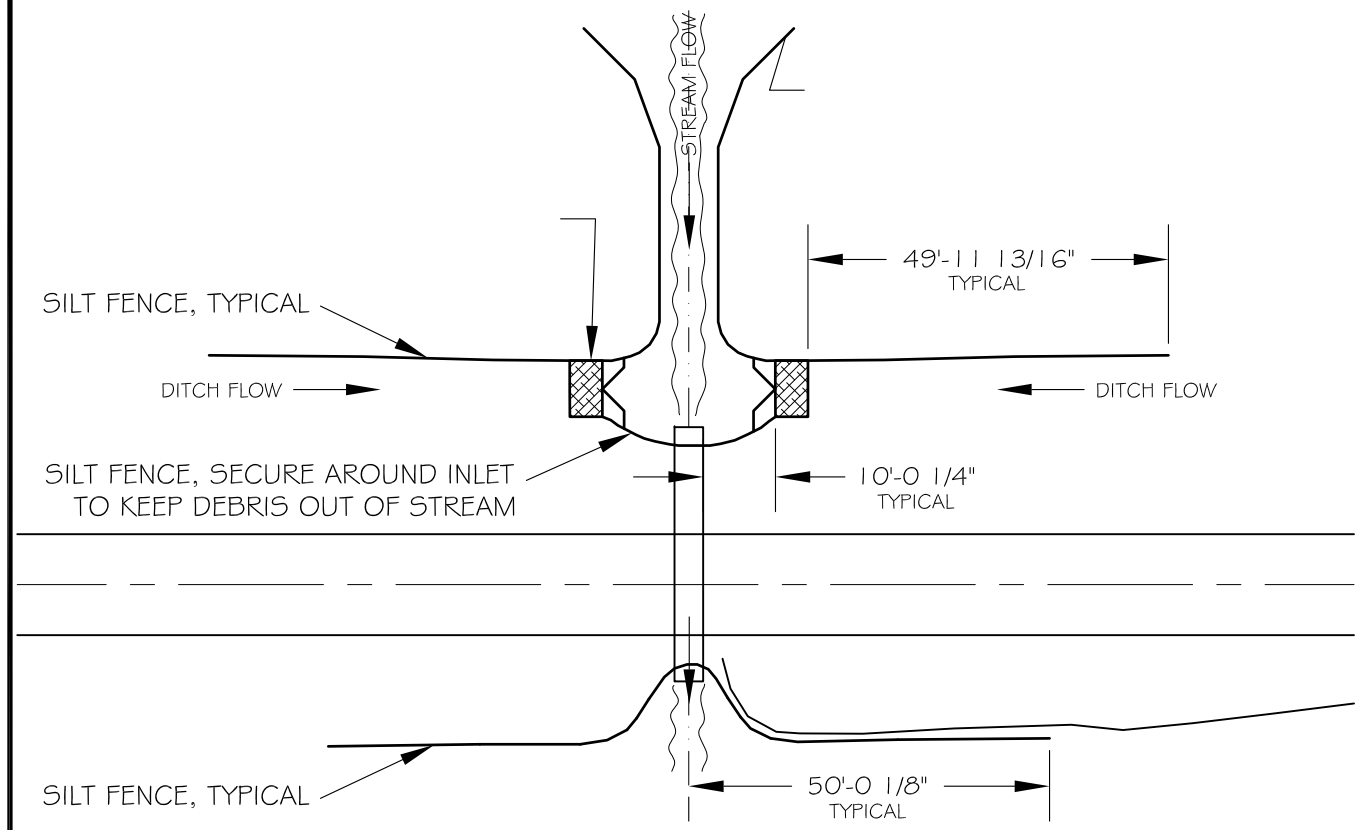
DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:	
DRAWN: BRAY	DATE: 07/29/08	XX/XX/XX	XXXXXXXXXX	X. XXXXXX	
REVIEWED: L. DUNHAM	DATE: 08/01/08	XX/XX/XX	XXXXXXXXXXXX	X.XXXXXX	
TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX	

LANCASTER ROADS

USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG DISTRICT

TYPICAL MODULAR BRIDGE (3 YEARS OR LESS)

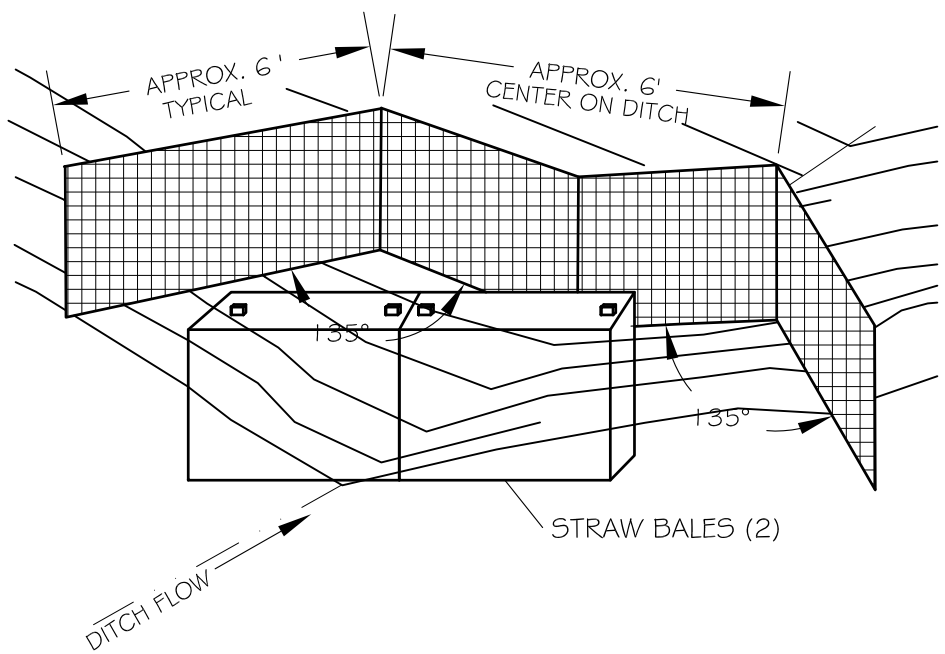
ACAD.DWG
PLOT ON 11"X17" PAPER

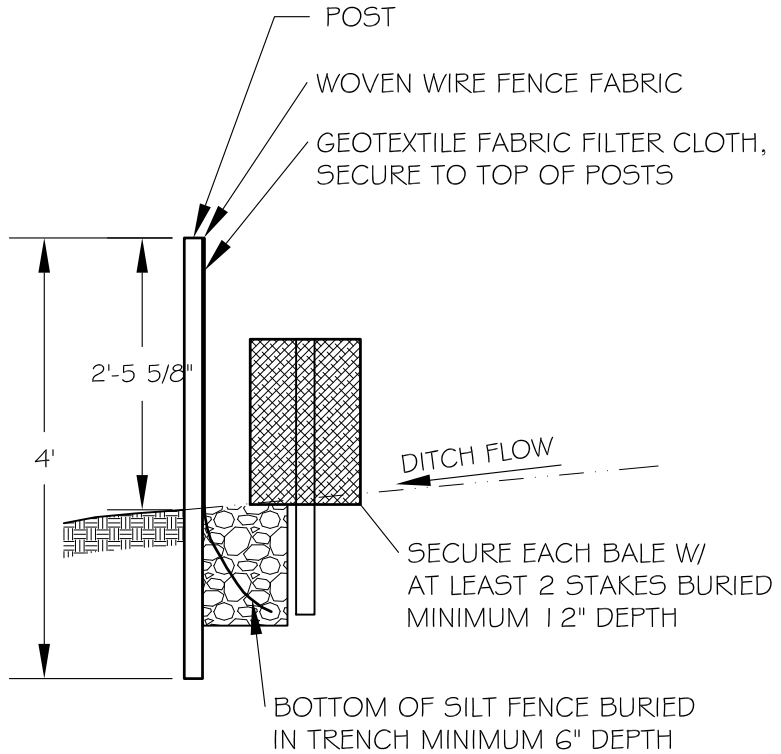


TYPICAL SEDIMENT CONTROL AT CULVERTS

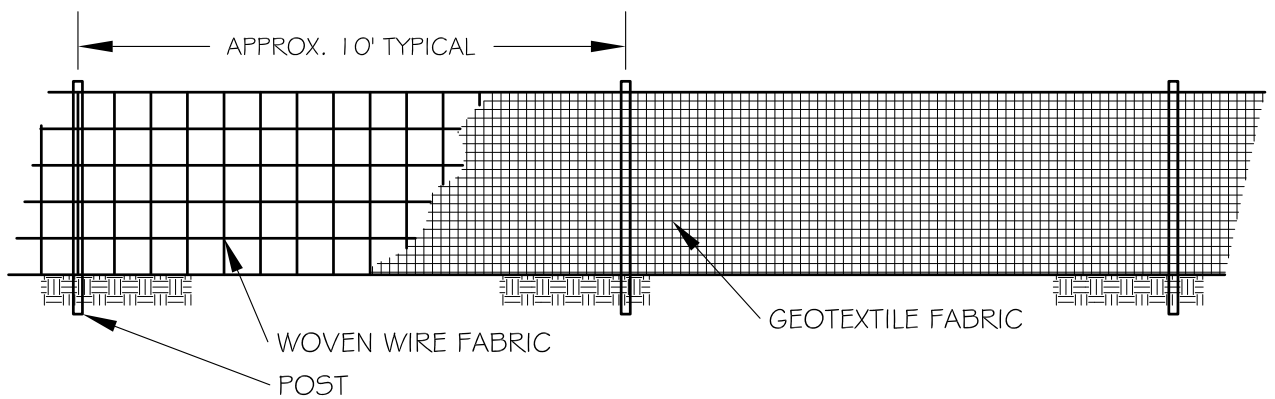
NOTES:

1. SILT FENCE CONSISTS OF WOVEN WIRE FENCE FABRIC WITH A MAXIMUM 6 INCHES MESH, MINIMUM HEIGHT 30 INCHES.
2. THE CO MAY REQUIRE ADJUSTMENTS TO ACTUAL LENGTHS OR LOCATIONS TO FIT FIELD CONDITIONS.
3. INSPECT SILT FENCES AFTER EACH RUNOFF EVENT AND IMMEDIATELY REPAIR ALL EROSION ALONG EDGES AND BOTTOM.
4. ACCUMULATED DEPTH OF SEDIMENT SHALL NOT EXCEED ONE HALF THE ORIGINAL HEIGHT OF THE SILT FENCE.
5. IN AREAS DESIGNATED FOR BRUSH BARRIERS, LIMIT CLEARING TO TREES, SHRUBS AND PLANTS LESS THAN 4 INCHES IN DIAMETER. GRUBBING SHALL NOT BE PERFORMED IN THESE AREAS.
6. BRUSH BARIER SHALL BE CONSTRUCTED APPROX. PARALLEL TO ORIGINAL GROUND CONTOUR. USE WELL-INTERMINGLED MASS OF BRUSH, TREES, TRIMMINGS, ETC. BARRIER SHALL BE POROUS ENOUGH TO ALLOW WATER TO FILTER THROUGH. SECURE BY PLACING HEAVIER MATERIAL (TREES, LOGS, ETC.) ON TOP OF AND THROUGHOUT THE BRUSH.
7. ADJOIN BRUSH BARRIER WITH ROADWAY SLOPE ON THE LOW END AS NEEDED TO CONTAIN SEDIMENTS.

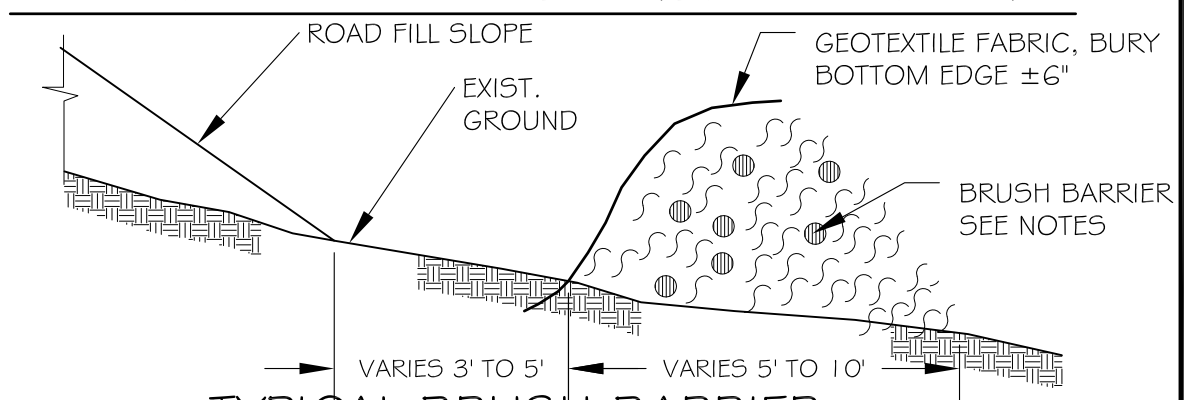




TYPICAL SILT FENCE INSTALLATION FOR DITCHES



TYPICAL SEDIMENT CONTROL AT CULVERTS



TYPICAL BRUSH BARRIER

TONGASS ENGINEERING & RECREATION	DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:	LANCASTER ROADS	EROSION CONTROL DEVICES
	DRAWN: SJC	DATE: 01/2005	XX/XX/XX	XXXXXXXXXX	X. XXXXXX	USDA FOREST SERVICE - TONGASS NATIONAL FOREST R-10 - CRAIG DISTRICT	ACAD.DWG PLOT ON 11"X17" PAPER
	REVIEWED: L. DUNHAM	DATE: 08/01/08	XX/XX/XX	XXXXXXXXXXXX	X.XXXXXX		SH. 13 of 14
	TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX		

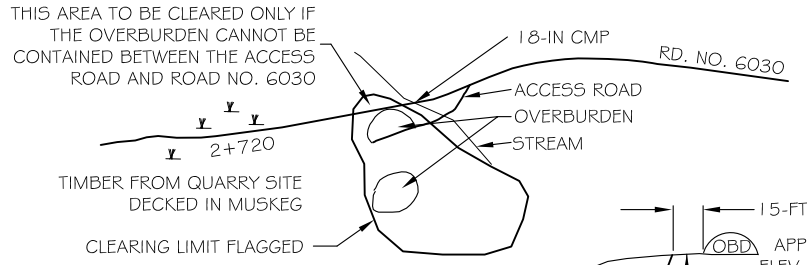
NOTES

1. ALL PITS AND QUARRIES SHALL BE APPROVED IN WRITING BY THE C.O. PRIOR TO EXPLORATION, CLEARING OR DEVELOPMENT.
2. REMOVE ALL OVERBURDEN TO SOLID ROCK FOR A MINIMUM DISTANCE OF 15' FROM THE WORKING FACE.
3. SLOPE THE CUT BANK OF THE OVERBURDEN TO THE NATURAL ANGLE OF REPOSE BUT IN NO CASE STEEPER THAN 1:1.
4. WITHIN THE CLEARING LIMITS:
   - MAXIMUM STUMP HEIGHT SHALL BE IN ACCORDANCE WITH SPECIFICATIONS.
   - STABLE TREES UP TO 6" dbh NEED NOT BE CUT IF THEY WILL NOT INTERFERE WITH BACK SLOPE STABILITY.
   - STUMPS AND BRUSH MAY BE LEFT IN PLACE, EXCEPT THAT ALL STUMPS THAT PROTRUDE FROM EXCAVATED BANKS OR THAT HAVE THE POTENTIAL TO BECOME DISLODGED AT ANY LATER DATE SHALL BE REMOVED.
5. DISPOSE OF OR STOCKPILE FOR LATER USE ALL OVERBURDEN, CLEARING, MERCHANTABLE TIMBER AND GRUBBING DEBRIS AS SHOWN ON THE QUARRY DEVELOPMENT PLAN.
6. FELL ALL DEAD TREES AND SNAGS WHICH ARE SUFFICIENTLY TALL TO REACH THE WORK AREA.
7. LEAVE THE PIT/QUARRY IN A NEAT, ORDERLY AND WELL-DRAINED CONDITION. REMOVE ALL OVERHANGS AND LOOSE ROCK.
8. AFTER EXCAVATION IS COMPLETE CLEAN THE AREA AND LEAVE AS SHOWN ON THE QUARRY DEVELOPMENT PLAN. TREAT ANY ACCESS ROAD AS SHOWN ON THE QUARRY DEVELOPMENT PLAN.
9. TEST SHOTS OF 1300 to 2600 CUBIC YARDS ARE REQUIRED AT ALL QUARRY SITES IF DESCRIBED IN THE SPECIFICATIONS.
10. LEAVE NO MORE THAN 5% BY VOLUME OF OVERSIZE MATERIAL IN THE QUARRY. BREAK DOWN ANY MATERIAL OVER THIS VOLUME AND USE AS SPECIFIED IN SECTIONS 651.
11. PROVISIONS FOR FUTURE QUARRY DEVELOPMENT ACCESS WILL BE PROVIDED, UNLESS THIS REQUIREMENT IS WAVED BY THE CO.
12. INSTALL AND MAINTAIN A COMMERCIALLY AVAILABLE RAIN GAUGE MEASURING IN UNITS OF INCHES AND FRACTIONS OF INCHES IN ACCORDANCE WITH SECTION 205.08.
13. HAUL WILL NOT BE ALLOWED BEYOND DESIGNATED SOURCES UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR AGREED TO BY THE CO.
14. SEED AND FERTILIZE ALL DISTURBED AREAS SUCH AS OVERBURDEN PILES AND BENCH SURFACES IN ACCORDANCE WITH SECTION 625.

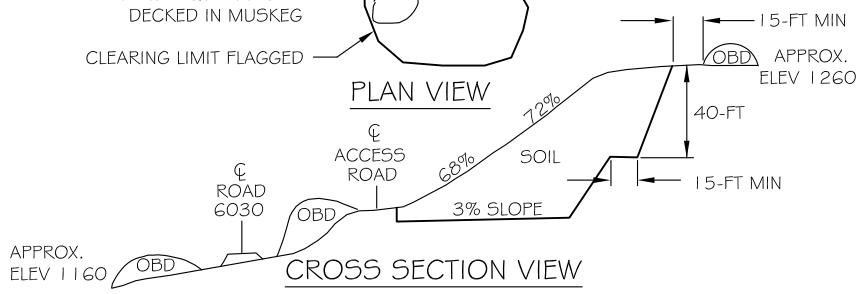
SAMPLE QUARRY DEVELOPMENT PLAN

QUARRY DEVELOPMENT PLAN

QUARRY IS LOCATED RIGHT OF STA 27+58 ON ROAD NO. 6030
ESTIMATE OF VOLUME = 24,850 CU. YD.



PLAN VIEW



CROSS SECTION VIEW

DEVELOPMENT PLAN

1. ALL MERCHANTABLE TIMBER WILL BE REMOVED FROM THE QUARRY SITE AND DECKED IN THE MUSKEG LEFT OF 27+20
2. OVERBURDEN WILL NOT BE PLACED IN THE SMALL STREAM BORDERING THE QUARRY.
3. DEVELOPMENT WILL COMPLY WITH THE GENERAL NOTES SHOWN ON THE PIT & QUARRY DEVELOPMENT TYPICAL SHEET.
4. TEST SHOT OF APPROX. 2000 CU. YD. IS PLANNED.

REHABILITATION PLAN

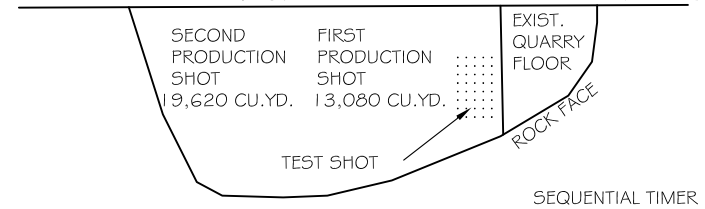
1. THE ACCESS ROAD WILL BE OBLITERATED BY CUTTING A DITCH AT THE JUNCTION OF THE ACCESS ROAD WITH ROAD NO. 6030 AND BY ROUGHING UP THE ACCESS ROAD SURFACE.
2. ALL OVERSIZE ROCK WILL BE PLACED AGAINST THE SIDES OF THE QUARRY NEXT TO THE BACKWALL BENCH.
3. A MINIMUM OF 12-IN OF OVERBURDEN WILL BE EVENLY SPREAD OVER THE QUARRY FLOOR.
4. ALL DISTURBED AREAS, SUCH AS OVERBURDEN PILES, BENCH SURFACES, AND ACCESS ROAD SURFACES, WILL BE SEEDED AND FERTILIZED IN ACCORDANCE WITH SPECIFICATIONS.
5. PROVISIONS FOR FUTURE QUARRY ACCESS WILL BE PROVIDED UNLESS THIS REQUIREMENT IS WAIVED BY THE COR.

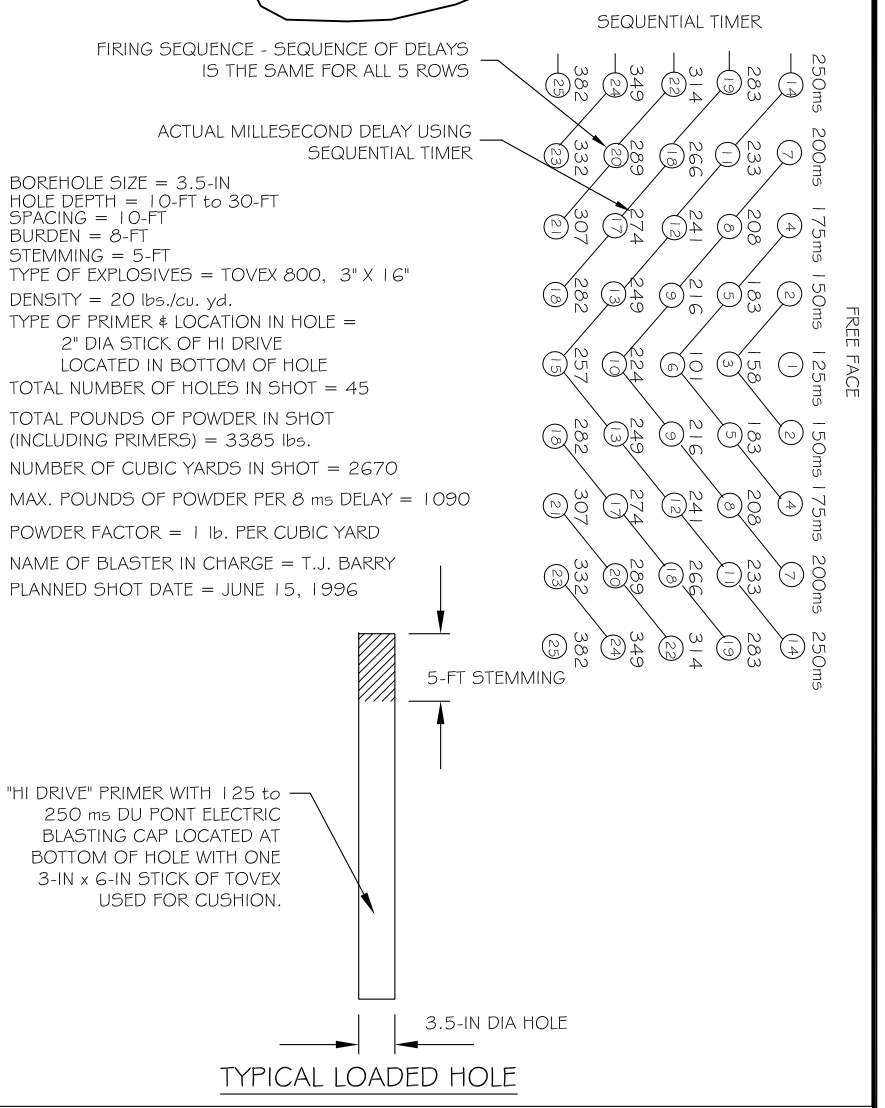
CONTRACTOR DATE | COR DATE | DISTRICT RANGER DATE

SAMPLE QUARRY BLASTING PLAN

QUARRY BLASTING PLAN

THIS PLAN IS FOR THE FIRST TEST SHOT IN THE QUARRY
RIGHT OF STA. 27+58 ON ROAD NO. 6030



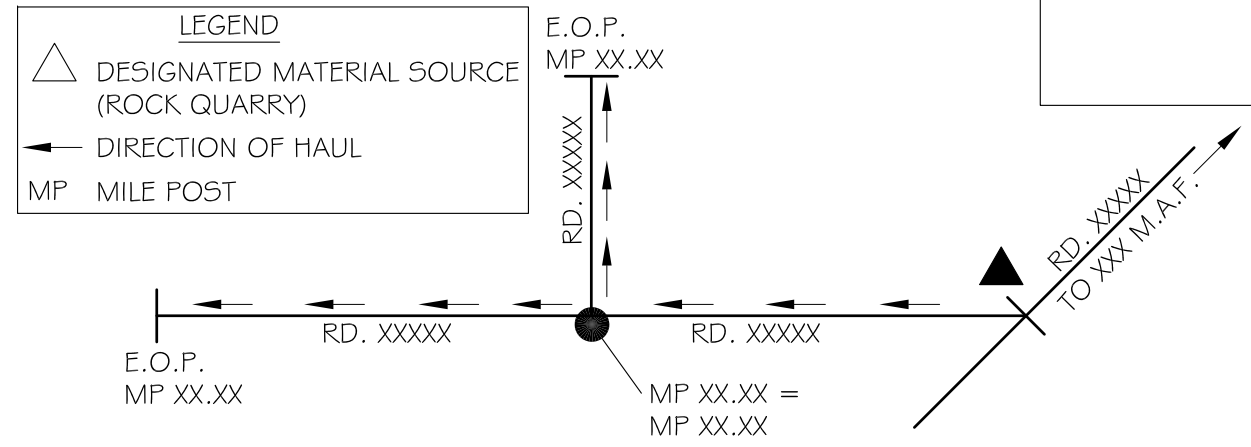


BOREHOLE SIZE = 3.5-IN
HOLE DEPTH = 10-FT to 30-FT
SPACING = 10-FT
BURDEN = 8-FT
STEMMING = 5-FT
TYPE OF EXPLOSIVES = TOVEX 800, 3" X 16"
DENSITY = 20 lbs./cu. yd.
TYPE OF PRIMER & LOCATION IN HOLE = 2" DIA STICK OF HI DRIVE LOCATED IN BOTTOM OF HOLE
TOTAL NUMBER OF HOLES IN SHOT = 45
TOTAL POUNDS OF POWDER IN SHOT (INCLUDING PRIMERS) = 3385 lbs.
NUMBER OF CUBIC YARDS IN SHOT = 2670
MAX. POUNDS OF POWDER PER 8 ms DELAY = 1090
POWDER FACTOR = 1 lb. PER CUBIC YARD
NAME OF BLASTER IN CHARGE = T.J. BARRY
PLANNED SHOT DATE = JUNE 15, 1996

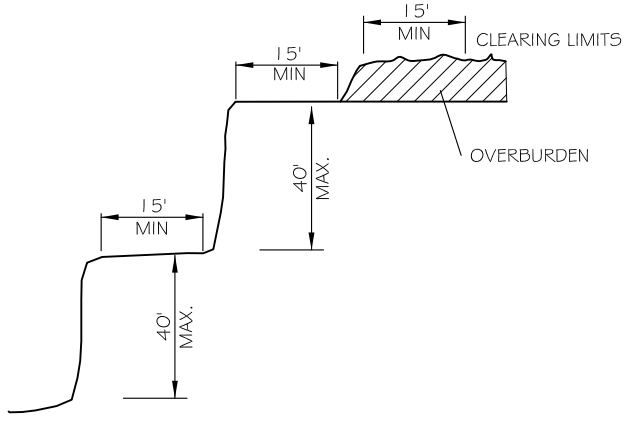
TYPICAL LOADED HOLE

LEGEND

△ DESIGNATED MATERIAL SOURCE (ROCK QUARRY)
← DIRECTION OF HAUL
MP MILE POST



HAUL DIAGRAM



TONGASS ENGINEERING & RECREATION	DESIGNED: BRAY	DATE: 07/29/08	DATE:	REVISION:	BY:
	DRAWN: SJC	DATE: 2/24/05	XX/XX/XX	XXXXXXXXX	X. XXXXXX
	REVIEWED: L. DUNHAM	DATE: 08/01/08	XX/XX/XX	XXXXXXXXXXX	X.XXXXXX
	TNFTYP:08/2004		XX/XX/XX	XXXXXXXXXXX	X. XXXXXX

LANCASTER ROADS
USDA FOREST SERVICE - TONGASS NATIONAL FOREST
R-10 - CRAIG DISTRICT

PIT & QUARRY DEVELOPMENT
pit_and_quarry_rev.DWG
PLOT ON 11"X17" PAPER
SH. 14 of 14